



Different patterns of northward advancing Indian plate beneath western Tibet revealed by anisotropy tomography

Heng Zhang (1), Dapeng Zhao (2), Yunyue Li (3), Junmeng Zhao (1), and Hongbing Liu (1)

(1) Institute of Tibetan Plateau Research, Chinese Academy of Sciences, Laboratory of Continental Collision and Plateau Uplift, China (zhangheng415@itpcas.ac.cn), (2) Department of Geophysics, Tohoku University, (3) Department of Civil and Environmental Engineering, National University of Singapore

We analyze the teleseismic travel time data recorded by 70 temporary stations from the Y2 and ANTILOPE-1 arrays using the radial anisotropy tomography to investigate the upper mantle structure beneath western Tibet. Two distinct regions are separated by a layered belt along 80°E, which is interpreted as the subducted Indian plate. In the eastern part, a high-velocity zone with positive radial anisotropy has been detected, which is consistent with our previous results. To the west, we observed a layered radial anisotropic structure although the velocity is relatively high from 70 km to 250 km depth. Combing our results with geological, geochemistry and GPS study, we propose that such local feature (the layered belt) may result in the tearing of northward advancing Indian plate. In addition, the different features between the western and eastern side of our study region indicate the existence of remnant Eurasian lithosphere.